

ABSTRACT

An ellipsometer capable of generating a small beam spot is disclosed. The ellipsometer includes a light source for generating a narrow bandwidth probe beam. An analyzer is provided for determining the change in polarization state of the probe beam after
5 interaction with the sample. A lens is provided having a numerical aperture and focal length sufficient to focus the beam to a diameter of less than 20 microns on the sample surface. The lens is formed from a graded index glass wherein the index of refraction varies along its optical axis. The lens is held in a relatively stress free mount to reduce stress birefringence created in the lens due to changes in ambient temperature. The ellipsometer is capable of
10 measuring features on semiconductors having a dimensions as small as 50x50 microns.